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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 10 member countries: Cambodia, China, Indonesia, Lao PDR, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand, and Vietnam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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# Fish for the Future: An Assessment of Fishery Conservation Policies in the Philippines

**EEPSEA POLICY BRIEF • No. 2003 - PB9**

Declining fish stocks is a major environmental problem all around the world - one that is jeopardizing the livelihoods of many coastal communities. For policy-makers dealing with this problem, the most pressing challenge is to design regulations that balance the needs of conservation with those of the fishing communities. A new report from an important fishing area in the Philippines has found that current regulations to deal with overfishing are neither cost-effective nor address the underlying problems of overexploitation of fish stocks and open access to fishing areas. The report suggests that a tradable quota system may provide an answer to the problem and suggests policies that would back up such an approach. ➔

**A summary of EEPSEA Research Report 2003-RR9, Economic Evaluation of Fishery Policies in Lamon Bay, Quezon, Philippines, by Maribec Campos, Blanquita Pantoja, Nerlita Manalili and Marideth Bravo (SEAMEO-SEARCA, Los Banos, Laguna, Philippines; contact: [lamonbay@agri.searca.org](mailto:lamonbay@agri.searca.org))**



# Regulations are neither cost-effective

## → An unsustainable catch

The study was conducted by Maribec Campos, Blanquita Pantoja, Nerlita Manalili and Marideth Bravo, from the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA) in Los Banos, Philippines. It looked at Lamon Bay, 160 km south of Manila. Although Lamon Bay is one of the top ten fishing grounds in the Philippines, its fish catch has been declining by 13.5% annually - more than twice the national average of 5.4%. This fact, linked with the high exploitation rates and small length of fish caught in the bay, has raised the concern that fishing in Lamon Bay has exceeded its sustainable limits.

In light of this, several fishery management and conservation policies have been implemented in the Bay. However, no study had been conducted to determine the efficiency and effectiveness of these policies. To fill in this information gap - and to investigate what else might need to be done - the researchers, looked in detail at three municipalities: Infanta, Real, and Polillo.

The situation in Lamon Bay is part of a country-wide trend. Throughout the Philippines, fish stocks are threatened by overfishing and habitat destruction and fish catch has declined since the early 1990s.

## Fishing for information

Campos' team first investigated the scope of fishing in Lamon Bay and

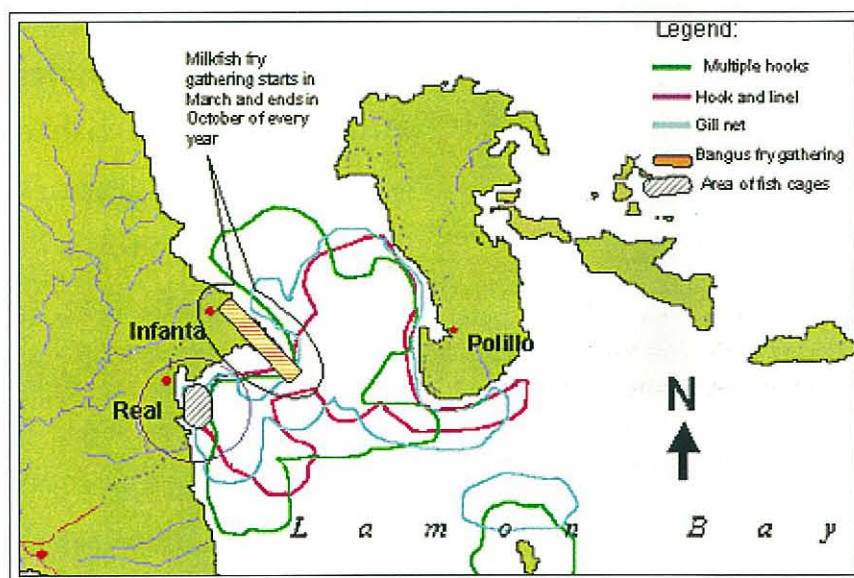
found that three methods were used: hook & line, multiple hooks, and gill net. Using a structured questionnaire, the researchers also gathered information on the economics of fishing operations in 2000 and 2001. They then investigated current fisheries policies, which include a ban on electric shiners over a certain wattage and the regulation of fish cages. These policies are in place because electric shiners, used to attract fish at night, attract fry that have not yet grown to harvestable size, while fish cages can destroy the breeding grounds of milkfish.

Campos' team also found that a two-year moratorium on the harvesting of milkfish fry is being called for in some areas. This is because milkfish fry gatherers also catch the fry of other fish species and throw them away to die. Other policies included the establishments of sanctuaries and the

implementation of permits and licenses.

## Effective policies?

Local leaders and stakeholders were interviewed to assess the effectiveness and efficiency of these policies. The researchers found that although awareness varied greatly, most people felt that the existing policies were slightly effective. Exceptions were those relating to sanctuaries, permits and licenses which were perceived as being ineffective. This last finding was backed up by the fact that 84% of respondents were themselves operating without fishing licenses. However, after assessing the productivity data, the researchers concluded that the perception that some conservation policies were effective was not borne out by fact. Instead they found general declining productivity - indicative of declining resource quality in the bay and so, policy failure.



*The Operation Area of Municipal Fishing Gears, Lamon Bay*

# ive *nor address underlying problems*

**PROJECTED FISH CATCH FROM LAMON BAY (IN METRIC TONNES), WITH AND WITHOUT REGULATION,  
AND WITH HIGH AND LOW ENFORCEMENT**

Policy	Year				
	2002	2003	2004	2005	2006
No regulation	413	358	309	267	231
With Regulation					
Shiner ban					
Low	423	376	335	299	268
High	423	432	440	449	458
Fish Cage ban					
Low	415	360	313	272	236
High	415	419	423	428	432
Both shiner / fish cage ban					
Low	424	378	338	303	273
High	424	435	446	457	468

In light of these results, the team set out to find out why policies were failing. They found that many policies were not supported by the fishing communities of Lamon Bay because people could not appreciate their relevance to the problems of everyday life. The researchers also analyzed the local institutions involved in fisheries policies. They found that they were constrained by lack of funds, political will and technical know-how. This in turn led to poor policing and enforcement. The significance of poor policy implementation was backed up by further analysis, which showed that the laws banning electric shiners and regulating milkfish gatherers would have some effect if the regulations were fully enforced.

## Costing fish conservation

Campos' team then looked at whether regulation made economic

sense. They investigated two scenarios: a "business as usual" situation in which the current annual expenditure (PHP 30,000; USD 560) for the implementation and monitoring of the policies was maintained; and a second scenario in which enough money was spent to fully implement fishery conservation policies. The researchers found that a substantial investment (PHP 614,000 per year; USD 11,500) would be required to ensure compliance. However, they also found that the benefits of achieving high levels of compliance would exceed costs by only a tiny margin.

Their analysis also showed that full policy implementation would not necessarily conserve fish stocks. Instead, it could create a situation in which increasing numbers of people would continue to fish. These people would be forced to spend larger amounts of effort and

money to comply with various fishing restrictions. However, they would, in all likelihood, harvest no fewer fish.

According to the researchers, the underlying problems in Lamon Bay are open access and overfishing. Indeed, their analysis showed that a 100% increase in the level of fishing effort would not increase yield but instead produce a decline in fish catch. This shows that the fish stock is already overexploited, a situation exacerbated by the fact that fishermen from outside the region can come in and fish the bay with little or no hindrance.

## Bigger fish to fry

Given the failure of current policies and the economic inefficiency of full regulatory implementation, the researchers then investigated other approaches to conserving fish stocks. According to Campos' team, a



potentially more effective policy - one that deals with the key problems of open access and overfishing - is to set a limit on the total number of fish that can be caught and divide this quota among Lamon Bay's fishermen. Although the imposition of a Total Allowable Catch is stipulated in the new Fisheries Code, no effort has yet been made to implement this in the region.

To make implementation of this policy easier, the researchers suggest that initial reductions could be made by revoking the permits of fishermen who contravene fishing

regulations, e.g. regarding permissible catch size or seasons. To allow flexibility, the allocated quotas might be tradable. Among other things, this would allow new fishermen to enter the industry - but only by buying a quota from an existing quota holder. Such a system of individual tradable quotas or permits has been very successful in New Zealand.

At the same time, the researchers point out that many fishermen will have to find other means of employment and should be given help to do this. They recommend that a tradable quota system should

be complemented by alternative livelihood projects to wean fishermen and their families off of fishing. Most fishermen in Lamon Bay are poor and have no other sources of income. Their household members are usually unemployed but employable. In light of this, the researchers conclude that an integrated coastal management plan is imperative. Such a plan should seek to develop alternative sources of income that will reduce fishing pressure on the bay, making both fishing and the wider local economy sustainable.

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